

**METHOD AND APPARATUS FOR PRODUCING NATURAL SOUNDING
PITCH CONTOURS IN A SPEECH SYNTHESIZER**

Abstract of the Disclosure

5 A speech synthesis system is disclosed that utilizes a pitch contour
resulting in a more natural-sounding speech. The present invention modifies the
predicted pitch, $b(t)$, for synthesized speech using a low frequency energy booster. The
low frequency energy booster interpolates the discrete pitch values, if necessary, and
increase the amount of energy of the pitch contour associated with low frequency values,
10 such as all frequency values below 10 Hertz. The amount of energy of the pitch contour
associated with low frequency values can be increased, for example, by adding
band-limited noise (a carrier signal) to the pitch contour, $b(t)$, or by filtering the pitch
values with an impulse response filter having a pole at the desired low frequency value.
The present invention serves to add vibrato to the to the original pitch contour, $b(t)$, and
15 thereby improves the naturalness of the synthetic waveform.

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